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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/848,794

05/04/2001

Adrian Boariu

042933/302745

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05/15/2007

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EXAMINER

ZHENG, EVA Y

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

05/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/848,794

Applicant(s)

BOARIU, ADRIAN

Examiner

Eva Yi Zheng

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 11-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 2/20/07 have been fully considered but they are not persuasive. Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meet the claimed limitation as rejected.

Applicant's argument – Prior art by Hammons (Pub. No.: US 2004/0146014) does not teach or disclose the manner by which the decoder decode those codes.

Examiner's response – Hammons disclose a space-time coding and decoding system. The encoded symbols are transmitted through a plurality of antennas. The signals transmitted are directly combined in a receiver with only one antenna. The received signal is expressed in a specific equation (equation 1 [0010]), wherein matrix, a real valued vector, is expressed in equation 2 ([0012-11015]). The space-time decoder (80 in Fig. 2) decodes the symbols that are received. The vectors formation and decoding process are well known in the art. Therefore, Hammons meet the claimed limitations.

2. Rejections under 35 U.S.C. 112, first paragraph have been withdrawn.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5 and 11-15 are rejected under 35 U.S.C. 102(e) as being unpatentable by Hammons, JR. et al (Pub. No.: US 2004/0146014).

a) Regarding to claim 1, Hammons disclose apparatus for a communication system in which space-time encoded data (58 in Fig. 2) is transmitted at a first location (70a in Fig. 2) and at least at a second location (70b in Fig. 2) for communication to a receive station (72 in Fig. 2), said receive station for decoding the space-time encoded data received thereat, said an apparatus comprising:

a decoder (80 in Fig. 2) coupled to receive indications of received values of the space-time encoded data received at the receive station, said decoder for directly combining values of the space-time encoded data transmitted from different ones of the first and at least second locations to the receive station (a single antenna at receiver in Fig. 2), the received values of the space-time encoded data, once directly combined, forming a real-valued vector, free of imaginary component parts (received signal express in matrix form; equation 1 and [0012-0015]), and said decoder further for detecting values of symbols of which the space-time encoded data is formed, based upon the real-valued vector into which the received values are directly combined (It is well known that decoder undo the encoding so that the original information can be retrieved. [0005-0022]).

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b) Regarding to claim 11, Hammons disclose a method for communicating in a communication system in which space-time encoded data (58 in Fig. 2) is transmitted at a first location (70a in Fig. 2) and at least a second location (70b in Fig. 2) for communication to a receive station (72 in Fig. 2), said method for decoding the space-time encoded data, once received at the receive station, said method comprising the operations of:

directly combining received values of the space-time encoded data transmitted from different ones of the first and at least second location to the receive station (a single antenna at receiver in Fig. 2), the received values of the space-time encoded data, once directly combined, forming a real-valued vector, free of imaginary component parts (received signal express in matrix form; equation 1 and [0012-0015]);

detecting values of symbols of which the space-time encoded data is formed (80 in Fig. 2), once combined during said operation of directly combining received values of the space-time encoded data (It is well known that decoder undo the encoding so that the original information can be retrieved).

c) Regarding to claim 2, Hammons disclose the apparatus of claim 1, wherein the space-time encoded data transmitted at the first and at least second locations comprises a space-time encoded block of data (as shown in Fig. 4), and wherein said decoder directly combines received values of the space-time encoded block (as shown in Fig. 2).

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d) Regarding to claim 3, Hammons disclose the apparatus of claim 2 wherein said decoder further forms a sequence estimate, the sequence estimate formed of a sequence of values of the symbols ([0005-0022]).

e) Regarding to claims 4 and 14, Hammons disclose wherein the communication system comprises a radio communication system (inherent as DS-CDMA; [0041]), wherein the first location at which the space-time encoded data is transmitted comprises a first antenna transducer (70a in Fig. 2), wherein the second location at which the space-time encoded data is transmitted comprises a second antenna transducer (70b in Fig. 2), the second antenna transducer spaced apart from the first antenna transducer (as shown in Fig. 2), wherein the receive station comprises a radio receiver (72 in Fig. 2), and wherein said decoder is coupled to receive indications of the space-time encoded data received at the radio receiver (80 in Fig. 2).

f) Regarding to claims 5 and 15, Hammons disclose wherein the space-time encoded data transmitted at the first antenna transducer is transmitted upon a first communication path to the receive station (Ant1 in Fig. 2), wherein the space-time encoded data transmitted at the second antenna transducer is transmitted upon a second communication path to the receive station (Ant2 in Fig. 2), wherein the receive station comprises at least one receive-antenna transducer (72 in Fig. 2) coupled to transducer indications of the space-time encoded data transmitted upon the first and second communication paths, respectively, into electrical form, and wherein the indications of the received values of the space-time encoded data to which said decoder

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is coupled to receive are in electrical form, subsequent to reception at the receive antenna transducer (as shown in Fig. 2).

g) Regarding to claim 12, Hammons disclose the method of claim 11 wherein the space-time encoded data transmitted at the first and at least second locations comprises a space-time encoded block of data (as shown in Fig. 4) and wherein said operation of directly combining received values of the space-time encoded data comprises directly combining values of the space-time encoded block (a single antenna at receiver in Fig. 2).

h) Regarding to claim 13, Hammons disclose the method of claim 12 further comprising the an operation of forming a sequence estimate, the sequence estimate formed of a sequence of values of the symbols detected during said operation of detecting values of symbols of which the space-time encoded data is formed (Fig. 2 and 4; [0005-0022]).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

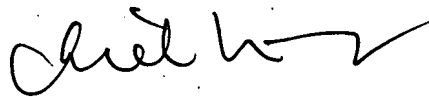
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng  
Examiner  
Art Unit 2611

May 8, 2007

A handwritten signature in black ink, appearing to read 'Chieh M. Fan', with a stylized flourish at the end.

CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER